

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended): Ink comprising:

a primary particle of a copolymer that has a glass transition point less than or equal to ~~[[45]]~~ 50 °C, a softening point measured by a flow tester ranging from 40 through 150°C and a volume average particle diameter ranging from ~~[[0.01]]~~ 0.05 through ~~[[2]]~~ 1 μm obtained from a radical polymeric monomer composition consisting essentially of:

(a) ~~[[40]]~~ 20 through ~~[[80]]~~ 99 wt% of either styrene or styrene derivative;

(b) 10 through 80 wt% of alkyl acrylate, ~~[[or]]~~ alkyl methacrylate, alkyl acrylate derivative or alkyl metacrylate derivative; and

(c) ~~5 through 10~~ 1 or more wt% of polymeric monomer including a polar group, the polymeric monomer including a polar group selected from the group consisting of acrylic acid, methacrylic acid, 2-hydroxypropyl-N, N, N-trimethylammonium chloride acrylate, vinylpyridine and N, N-diallylmethylammonium chloride;

a colorant; and

a solvent that is liquid at room temperature,

wherein the primary particle of the copolymer is prepared by a polymerization process selected from the group consisting of an emulsion polymerization, a micro emulsion polymerization and a soap-free polymerization.

2-3. (Canceled).

4. (Previously presented): The ink according to claim 1, wherein said copolymer has a glass transition point ranging from -30 through 45 °C.

5. (Canceled)

6. (Original): The ink according to claim 1, wherein said colorant comprises one selected from the group consisting of a pigment and a dye, and said colorant is dissolved or dispersed in said primary particle of a copolymer.

7. (Original): The ink according to claim 1, wherein said colorant comprises one selected from the group consisting of a pigment and a dye, and said colorant is absorbed on or coats a surface of said copolymer.

8. (Original): The ink according to claim 1, wherein said colorant comprises one selected from the group consisting of a pigment and a dye, and said colorant is dissolved or dispersed in said solvent.

9. (Original): The ink according to claim 1, wherein said copolymer is included at 1 through 50 wt%.

10. (Original): The ink according to claim 1, wherein said colorant is included at 0.1 through 20 wt%.

11-13. (Canceled)

14. (Currently amended): Ink comprising:

a copolymer particle that has a glass transition point less than or equal to ~~[[45]]~~ 50 °C, a softening point measured by a flow tester ranging from 40 through 150°C and a volume average particle diameter ranging from ~~[[0.01]]~~ 0.05 through ~~[[2]]~~ 1 μm obtained from a radical polymeric monomer composition consisting essentially of:

(a) ~~[[40]]~~ 20 through ~~[[80]]~~ 99 wt% of either styrene or styrene derivative;

(b) 10 through 80 wt% of alkyl acrylate, ~~[[or]]~~ alkyl methacrylate, alkyl acrylate derivative or alkyl metacrylate derivative; and

(c) ~~5 through 10~~ 1 or more wt% of polymeric monomer including a polar group, the polymeric monomer including a polar group selected from the group consisting of acrylic acid, methacrylic acid, 2-hydroxypropyl-N, N, N-trimethylammonium chloride acrylate, vinylpyridine and N, N-diallylmethylammonium chloride;

a colorant; and

a solvent that is liquid at room temperature,

wherein the primary particle of the copolymer is prepared by a polymerization process selected from the group consisting of an emulsion polymerization, a micro emulsion polymerization and a soap-free polymerization.

15. (Original): The ink according to claim 14, further comprising a surfactant covering a surface of said copolymer particle.

16. (Currently amended): An ink cartridge including a case and ink which is stored in said case and comprises:

a copolymer particle that has a glass transition point less than or equal to ~~[[45]]~~ 50 °C, a softening point measured by a flow tester ranging from 40 through 150°C and a volume average particle diameter ranging from ~~[[0.01]]~~ 0.05 through ~~[[2]]~~ 1 μm obtained from a radical polymeric monomer composition consisting essentially of:

(a) ~~[[40]]~~ 20 through ~~[[80]]~~ 99 wt% of either styrene or styrene derivative; and

(b) 10 through 80 wt% of alkyl acrylate, ~~[[or]]~~ alkyl methacrylate, alkyl acrylate derivative or alkyl metacrylate derivative; and

(c) 5 through 10 wt% of polymeric monomer including a polar group, the polymeric monomer including a polar group selected from the group consisting of acrylic acid, methacrylic acid, 2-hydroxypropyl-N, N, N-trimethylammonium chloride acrylate, vinylpyridine and N, N-diallylmethylammonium chloride;

a colorant; and

a solvent that is liquid at room temperature,

wherein the primary particle of the copolymer is prepared by a polymerization process selected from the group consisting of an emulsion polymerization, a micro emulsion polymerization and a soap-free polymerization.

17. (Currently amended): A recording device including a head and an ink cartridge supplying ink to said head, wherein said ink comprises:

a copolymer particle that has a glass transition point less than or equal to ~~[[45]]~~ 50 °C, a softening point measured by a flow tester ranging from 40 through 150°C and a volume average particle diameter ranging from ~~[[0.01]]~~ 0.05 through ~~[[2]]~~ 1 μm obtained from a radical polymeric monomer composition consisting essentially of:

(a) ~~[[40]]~~ 20 through ~~[[80]]~~ 99 wt% of either styrene or styrene derivative; and

(b) 10 through 80 wt% of alkyl acrylate, ~~[[or]]~~ alkyl methacrylate, alkyl acrylate derivative or alkyl metacrylate derivative; and

(c) ~~5 through 10~~ 1 or more wt% of polymeric monomer including a polar group, the polymeric monomer including a polar group selected from the group consisting of acrylic acid, methacrylic acid, 2-hydroxypropyl-N, N, N-trimethylammonium chloride acrylate, vinylpyridine and N, N-diallylmethylammonium chloride;

a colorant; and

a solvent that is liquid at room temperature,

wherein the primary particle of the copolymer is prepared by a polymerization process selected from the group consisting of an emulsion polymerization, a micro emulsion polymerization and a soap-free polymerization.

18. (Previously presented): A recording device according to claim 17, wherein said head is an inkjet head using a piezoelectric element.

Application No. 09/492,373
Amendment dated February 13, 2004
Reply to Office Action of November 14, 2003

19. (New): The ink according to claim 1, wherein said primary particle of a copolymer is prepared by a polymerization process selected from the group consisting of an emulsion polymerization, a micro emulsion polymerization and a soap-free polymerization.